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ABSTRACT

Junior and senior students (N=175) majoring in elementary education, recreation, and forestry were given an ecological attitude inventory which measured: (1) level of environmental knowledge; (2) verbal, actual, and emotional commitment to the environment; and (3) the degree to which they spoke, behaved, and felt positively toward the environment. Results indicate that participants have limited knowledge about the environment. In addition, their degree of verbal, actual, and emotional commitment to the environment is low; the respondents either do not care, have not learned, or have not been exposed to an adequate amount of environmental knowledge or to a sense of commitment. While not scoring significantly higher, forestry majors did score enough higher to suggest that their more science-based academic requirements increase their knowledge and therefore their environmental commitment. Findings (such as environmental knowledge being the strongest predictor of actual commitment to the environment) are consistent with those of other studies. Based on the low scores of participants, it is recommended that greater emphasis be placed on environmental education at all educational levels and that elementary education, recreation, and forestry majors have more required course work in ecology and environmental studies. (JN)

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ENVIRONMENTAL KNOWLEDGE AND COMMITMENT OF SELECTED UNIVERSITY STUDENTS

by

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Introduction

Environmental education is becoming increasingly important to society. The first international conference on environmental education was convened by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) at Tbilisi, U.S.S.R., in October 1977. In the Final Report - Intergovernmental Conference on Environmental Education (UNIPUB, 1980), it is stated that

> The role of education in the face of environmental problems and opportunities is . . . a crucial one. Environmental education should be integrated into the whole system of formal education at all levels to provide the necessary knowledge, understanding, values, and skills needed by the general public and many occupational groups for their participation in devising solutions to environmental questions . . . Certain occupational groups have responsibilities which bear directly on environmental problems and opportunities (for example, . . . planners, . . . teachers, administrators, . . . managers) (p. 12).

The Tbilisi Conference Report indicated that environmental education was an important component for citizens' understanding of the whole ecosystem within which humanity lives. The report urged a wholistic approach that would increase not only knowledge and information levels about the environment but that would affect citizens' awareness, conscience, and conduct toward and within the natural and humanly-made environment. Verbal, actual, and emotional commitment to the environment are reflections of awareness, attitude, and behavior toward and within the environment.

One of the first studies that linked environmental knowledge to environmental attitude suggested that a relationship existed between environmental information and environmental attitudes (Cohen, 1973). In 1976, Richmond and Iverson, in separate studies revealed similar results.

Several studies have been conducted on knowledge and attitude differences of various college majors. Moore's (1981) study of college students examined a possible link between energy related knowledge and attitudes. Results indicated that science majors have higher mastery of energy related information than non-science majors. However, comparisons of group means on attitude measures indicated that no difference exists between science and non-science majors.

In a similar study, Dispoto (1977) studied students from a psychology class, an environmental health class, and a campus environmental club. He utilized both the Defining Issues Test and the Revised Ecological Attitude Inventory. Data indicated that

> College students, regardless of how they were grouped, were more emotionally involved with the environment than knowledgeable about it; and more knowledgeable about it than active with regard to its improvement. Humanities majors were as concerned about the environment as science majors, but science majors knew and did more about it. Environmental emotions, knowledge, and actions all interrelated. Environmental knowledge was the more powerful predictor of environmental activity (p. 279).

Borden and Schettino (1979) studied students enrolled in introductory psychology classes. They revealed that increased concern about the environment does not lead to seeking knowledge nor does the acquisition of environmental facts result in increased emotional commitment. Emotional commitment was a more important factor to actual commitment than level of knowledge. Verbal commitment correlated with emotional commitment. Actual commitment correlated with both emotional commitment and high knowledge scores.

Increased environmental knowledge and significant correlations between environmental knowledge and environmental attitudes were indicated in most of the studies of the effectiveness of environmental

education programs. Attitudinal studies of specific populations revealed relationships between environmental knowledge and environmental attitudes. Most researchers noted inferred relationships between environmental knowledge and attitude but did not note a subsequent relationship to positive environmental behavior, action, or actual commitment.

Subjects and Procedures

The subjects for the study consisted of 175 junior and senior students majoring in Elementary Education, Forestry, and Recreation at the University of Missouri-Columbia in the Fall of 1981. Each subject was administered the Maloney, Ward and Braucht's (1975) revised ecological attitude inventory. This inventory was chosen because it determined respondents' level of environmental knowledge. Additionally, it determined not only the verbal, actual, and emotional commitment of respondents to the environment but to what degree they speak, behave, and feel positively toward the environment.

Results

Forestry majors' mean scores were higher than Elementary Education and Recreation majors' mean scores for verbal commitment ($\overline{X}$ = 12.89), actual commitment ($\overline{X}$ = 10.05), and knowledge ($\overline{X}$ = 16.81). Recreation majors' mean scores were higher than Elementary Education and Forestry majors' mean scores for emotional commitment ($\overline{X}$ = 13.66). Elementary majors' scores were the lowest for all four subscales. According to this test with these groups of respondents, it would appear that Forestry majors are more committed to and more knowledgeable about the environment (Table 1).

Table 1
Mean Scores of Respondents by Four Subscores and Majors

	Verbal*	Actual*	Emotional*	Knowledge**
Elementary Education	11.28	4.90	11.09	10.90
Forestry	12.89	10.05	12.62	16.81
Recreation	12.22	7.86	13.66	14.10

* Maximum score = 20
** Maximum score = 30

Pearson product moment correlations were then computed on the scores of Elementary Education majors, Forestry majors, and Recreation majors. For Elementary Education majors, correlations between emotional commitment and actual commitment ($r = .43$), knowledge and verbal commitment ($r = .35$), knowledge and actual commitment ($r = .36$), and knowledge and emotional commitment ($r = .32$) were significant but low (Table 2).

Correlations between actual commitment and verbal commitment ($r = .28$), emotional commitment and verbal commitment ($r = .34$), emotional commitment and actual commitment ($r = .40$), and knowledge and verbal commitment ($r = -.23$) were significant but low for Forestry majors (Table 2).

Correlations between actual commitment and verbal commitment ($r = .28$), emotional commitment and verbal commitment ($r = .37$), and emotional commitment and actual commitment ($r = .43$) were significant but low for Recreation majors (Table 2).

Table 2
Correlational Matrix of Majors' Verbal, Actual, and Emotional Commitment to and Knowledge about the Environment

	Actual	Emotional	Knowledge
Elementary Education			
Verbal	0.05	0.20	0.35*
Actual	--	0.43*	0.36*
Emotional	--	--	0.32*
Forestry			
Verbal	0.28*	0.34*	-0.23*
Actual	--	0.40*	0.02
Emotional	--	--	-0.18
Recreation			
Verbal	0.28*	0.37*	0.05
Actual	--	0.43*	0.01
Emotional	--	--	0.04

*p<.05

The significant correlation consistent to all three majors was actual commitment to emotional commitment.

Conclusion

Elementary Education, Forestry, and Recreation majors have limited knowledge about the environment. Furthermore, their degree of verbal, actual, and emotional commitment to the environment is low. The respondents either do not care, have not learned, or have not been exposed to an adequate amount of environmental knowledge or to a sense of commitment. While not scoring significantly higher, Forestry majors did

score enough higher to suggest that their more science-based academic requirements increase their knowledge and therefore their environmental commitment. Consistent with previous research, the present study supported studies that noted correlations between knowledge and commitment. This study also supported Dispoto's (1977) and Borden and Schettino's (1979) findings that enrironmental knowledge was the strongest predictor of actual commitment to the environment.

Behavioral scientists have drawn mixed conclusions about attitude and behavior development and modification. They do not state positively that knowledge leads to change in verbal, actual, and emotional commitment. According to this study, the researchers concluded that the higher the environmental knowledge base of the respondents, the more committed the respondents are likely to be to the environment.

The low scores of respondents on the knowledge subscale of the present study support the findings of Richmond (1976). According to mean scores for all groups, the present study also supported Dispoto's (1977) findings that college students are more emotionally committed to the environment than actually or verbally committed to the environment.

Recommendations

Based on the low knowledge scores of the respondents, it is recommended that more and better environmental education for kindergarten through college be implemented in order to increase the environmental knowledge of all students. Specifically, Elementary Education, Forestry, and Recreation majors need to have more required course work at the university level in ecology and environmental studies. The course

curriculum for Elementary Education majors needs revision toward increasing environmental knowledge and commitment because teachers hav- direct contact with and influence over hundreds of impressionable children.

Forestry and Recreation majors will be future managers, planners and administrators of millions of acres of land and water, the plants and animals that occupy those areas, and the thousands of people who will recreate on those areas. They will be more accountable managers, planners, and administrators of the resources they are responsible for if they have considerable environmental knowledge and environmental commitment. It is crucial that course curricula reflect that need.

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